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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,780	02/08/2002	Miguel Peeters	1875.2480000	3445
26111	7590	05/31/2005	EXAMINER	
STERNE, KESSLER, GOLDSTEIN & FOX PLLC 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			MEEK, JACOB M	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,780

Applicant(s)

PEETERS, MIGUEL

Examiner

Jacob Meek

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 08 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because of handwritten drawings. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 14 recites the limitation of an IDFT module which is not shown in receive section.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 10, 13, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention. Range of variable j is not defined in claim or specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 3, 6, 7, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen (US-6,807,234).

With regard to claim 1, Hansen teaches a method of DMT transmission making up a plurality of frames including: allocating a respective number of bits to each of a plurality of discrete tones (see column 2, lines 19 – 29); assigning bits of each frame to discrete tones such that each discrete tone is assigned allocated respective number of bits (see column 3, line 57 – column 4, line 4) wherein permutation mapping bits of each frame to each of discrete tones cycles through a sequence of different permutations in successive frames (see column 3, lines 44 – 56 where scrambler, FEC and interleaver are interpreted as providing a permutation function); generating for each frame a symbol comprising a plurality of discrete tones modulates to transmit the bits assigned to the respective tones (see column 3, lines 57 – column 4, line 4); and transmitting the generated symbols (see column 5, lines 1 – 10).

Hansen is silent with respect to permutation of data. It would have been obvious to one of ordinary skill in the art at the time of invention that the Hansen's combination of scrambler and interleaver would result in a permutation of data.

With regard to claims 2 and 3, Hansen teaches that a variety of interleaving techniques can be utilized in his system (see column 3, lines 31 – 43). The choice of a particular method would be a design choice.

With regard to claim 6 and 7, Hansen teaches a method for data transmission including for each of discrete tones generating for each frame an amplitude phase keyed constellation point representing bits allocated to tone (see column 1, lines 26 – 45).

With regard to claim 8, Hansen teaches a method where FEC is performed (see column 3, lines 10 – 24 where Trellis coding is interpreted as a form of FEC).

With regard to claim 9, Hansen teaches a DMT modem for transmitting a streams of bits making up a plurality of frames, comprising: a tone generator for assigning bits in each frame to discrete tones such that each discrete tone is allocated a predetermined number of respective bits (see column 3, lines 57 – column 4, line 4); wherein permutation mapping bits of each frame to each of discrete tones cycles through a sequence of different permutations in different frames (see column 3, lines 44 – 56 where scrambler, FEC and interleaver are interpreted as providing a permutation function); a constellation point generator for generating a constellation point for each tone representing the assigned bits (see column 5, lines 1 – 10), and an IDFT module for generating an output signal including a plurality of discrete tones from the constellation points (see column 5, lines 25 – 38). It would have been obvious to one in ordinary skill in the art at the time of invention that the Hansen's combination of scrambler and interleaver would result in a permutation of data.

With regard to claim 12, Hansen teaches a transceiver incorporating the method of claim 1 and receiver function is interpreted as inverse of transmits function of claim 1,

With regard to claim 14, Hansen teaches a DMT modem for receiving a stream of symbols representing a plurality of frames comprising: a DFT module for generating

constellation points corresponding to discrete tones contained in each received symbol (see figure 1, 52); a tone decoder (see figure 1, 62 and column 7, lines 1 – 16), and a constellation decoder (see figure 1, 54).

With regard to claim 15, Hansen teaches a method for transmission and reception of data in claims 1 and 12, and therefore based on aforementioned rejection of claims 1 and 12, the method of end-to-end transmission of claim 15 would have been obvious.

Allowable Subject Matter

5. Claims 4, 5, 10, 11, 13, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Cited Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cai (US-6,205,410), Herzberg (US-6,459,678), Andre (US-6,690,736), Betts (US-6,823,002), and Hoo (US-6,829,307) all disclose variations of bit allocation and noise compensation techniques. NPL references discuss bit allocation technique and performance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM



JAY K. PATEL
SUPERVISORY PATENT EXAMINER